1FW AF/3635

TRANSMITTAL OF BRIEF ON APPEAL	Docket No. 29020/003A

In re Application of: Jason D. Miller et al.

Application No.	Filing Date	Examiner	Group Art Unit
09/548,876	April 13, 2000	Y. Horton	3635

Invention: HEAT SHIELDED DOCK PAD

TO THE COMMISSIONER OF PATENTS:

Transmitted herewith is a Brief on Appeal in this application.

[X] The Director is hereby authorized to charge any fees that may be required to Deposit Account No. 13-2855 .
This sheet is submitted in duplicate.

Dated: May 10, 2004

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I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail, in an envelope addressed to: MS Appeal Brief - Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

Dated: May 10, 2004 Signature: _____
Paul B. Stephens

Docket No.: 29020/003A
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Miller et al.

Application No.: 09/548,876 Group Art Unit: 3635

Filed: April 13, 2000 Examiner: Y. Horton

For: HEAT SHIELDED DOCK PAD

BRIEF ON APPEAL

Mail Stop Appeal Brief-Patent
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the Notice of Appeal mailed March 9, 2004 in connection with the above-identified patent application, Applicants respectfully submit the instant Brief on Appeal in accordance with 37 C.F.R. § 1.192.

I. SUMMARY

The present rejection should be removed because there is no express or inherent teaching in the art of a dock pad having the claimed heat shield or a heat shield having the claimed thermal conductivity properties. The patent office's reference to an unrelated listing of some example thermal conductivities does not establish any inherent properties of the materials actually referenced in the prior art.

II. REAL PARTY IN INTEREST

The above-referenced patent application has been assigned to Rite-Hite Holding Corporation, who is the real party in interest to this appeal. The assignment

has been recorded in the United States Patent and Trademark Office ("PTO") at Frame 010791 of Reel 0849.

III. STATUS OF THE CLAIMS

Currently, claims 1, 2, 4-17, 19, and 20 are pending in this application. The pending claims are presented in Appendix A to this Brief. Claims 7-11 stand allowed and are not subject to this appeal. Claims 1, 2, 4-6, 12-17, 19 and 20 stand rejected and form the subject matter of this appeal.

By way of background, this application was filed on April 13, 2000. A status letter was filed on April 19, 2001, and the first official action eventually ensued on July 5, 2001.

The case was filed with twenty (20) claims, claims 1, 17 and 20 being the only independent claims. All claims were rejected in the first official action based upon a patent to Styba, U.S. Patent No. 6,016,637 (attached as Appendix B). Claims 1, 2 and 12-15 were rejected as anticipated. Claims 3-11 and 16-20 were rejected as obvious. The applicants filed a response noting that each of the rejected claims recited "a heat shield" and that Styba did not teach a heat shield. As the applicants pointed out, the Styba structure relied upon by the Examiner was in fact a puncture resistant material not a heat shield.

A second (and final) official action ensued, again rejecting all pending claims 1-20. The Examiner reiterated the same claim rejections made in the first official action and added a second obviousness rejection of claim 16, this time using Styba in view of a commercial product mentioned only in the present specification (the Commercial Material RTCM01).

In the office action, the Examiner relied upon a passing comment in Styba that its puncture resistant material could be "polyester." From this, the Examiner surmised that Styba taught the claimed heat shield, because polyester was known for its "flexible and flame resistance characteristics," per the Examiner. The Examiner attached a dictionary page that made reference to polyester in support of the rejection. That page, however, focused on flame retardance and non-flammability,

but did not addressed the claimed subject matter, which was directed to heat shielding and thermal conductivity.

The applicants filed a response and 37 C.F.R. §1.116 amendment that cancelled claims 3 and 18, without prejudice, and amended claims 1, 7-11, 17 and 20. The applicants appealed the final rejection (*Appeal Number 1*) (filed July 3, 2002).

In *Appeal Number 1*, the applicants noted that flame resistance and non-flammability were not necessarily indicators of heat shielding ability. In particular, the applicants noted that the materials of Styba did not appear to provide heat shielding, as Styba did not disclose materials that provided the advantages of the recited heat shield, for example high reflectivity or high thermal conductivity. The appealed rejection was both factually and legally in error.

Following review of the appeal within the Group, but before the appeal was forwarded to the Board, the case was returned to the Examiner for further action. At that point, the Examiner issued the currently-appealed rejection (Appendix C). Although based on "new" grounds, the rejection is quite similar to its predecessors.

Claims 1, 2, 4-15, 17, 19 and 20 stand rejected as anticipated by Styba. The patent office cites a chart entitled Transmission of Heat (Appendix D) as unequivocally establishing the inherent, but unspecified teachings of Styba. Specifically, the Transmission of Heat chart lists some example materials and example thermal conductivities for these materials. From this, the patent office deduces that Styba necessarily uses these materials and, thus, that the structure described in Styba renders the appealed claims anticipated (and/or obvious).

Separately, in rejecting claim 16, the patent office repeated its prior obvious rejection based on Styba in combination with an aluminum material mentioned in the applicants' specification, RTCM01.

The applicants filed the present notice of appeal. And on March 31, 2004, an in person interview was held with Examiner Horton to discuss the impropriety of the rejections. At that interview, samples of owner Rite-Hite's commercial products falling under the appealed claims were presented—including a sample of the RTCMO1 material from the instant specification.

IV. STATUS OF THE AMENDMENTS

The claims now appealed are the same as those at issue in *Appeal Number 1*. Therefore, the applicants incorporate Section III of the June 9, 2003 Resubmitted Brief on Appeal (Appendix E), from *Appeal Number 1*, for the status of the amendments.

V. SUMMARY OF THE INVENTION

The applicants reference and incorporate herein Section IV of the Resubmitted Brief an Appeal (Appendix E), from *Appeal Number 1*.

VI. ISSUES ON APPEAL

The issues presented on appeal are as follows:

Is each of claims 1, 2, 4-6, 12-15, 17, 19, and 20 patentable over Styba, U.S. Patent 6,016,637?

Is claim 16 patentable over Styba alone or Styba in view of the Commercial Material RTCMO1?

VII. GROUPING OF CLAIMS

Applicants assert that each of groups:

claim 1, 2, 4-6, 12-15, 17, 19 and 20; and

claim 16;

stands or falls separately. That each of these claim groups stands or falls separately is demonstrated by the facts that: (1) each of these claim groups includes different and distinct limitations that cannot be found in the cited art as demonstrated below, and (2) that if any one of claims 1, 2, 4-6, 12-17, 19, and 20 were met by the cited art, the patentability of the claim in the remaining group would not be effected.

VIII. ARGUMENT

A. Claims 1, 2, 4-6, and 12-15, 17, 19, and 20 Are Patentable Over Styba.

1. All Claims Recite a Heat Shield Having Relative Thermal Conductivities

Claim 1, and claims 2, 4-6 and 12-15 depending therefrom, all recite a dock pad adapted to seal against a vehicle parked against the dock pad. The claimed dock pad includes a foam core; a cover disposed on the foam core; and a heat shield adjacent the cover, wherein the dock pad is adapted to seal against the vehicle by virtue of the foam core being compressible, the cover being pliable, and the heat shield being pliable. The dock pad further recites "wherein the heat shield has a higher thermal conductivity than the foam core."

Claim 17 is an independent claim reciting a dock pad including a foam core and a cover disposed on the foam core. The claimed dock pad further includes a heat shield interposed between the cover and the foam core, wherein "the heat shield has a higher thermal conductivity than the foam core and the cover." Claim 19 depends from claim 17.

Claim 20 is an independent claim reciting a dock pad including a backer, a foam core, and a cover. The dock pad further includes "a heat shield that has a higher conductivity than the foam core."

In each of these claims, the recitation of a heat shield connotes a structure for shielding from heat. The drawings depict exemplary heat shields 38 and 38', and the specification describes these and other exemplary heat shields in numerous places, for example:

> To make pad 14 more resistant to heat, such as heat generated by a taillight 32 pressing against certain points 34 on a sealing surface 36 of pad 14, a heat shield 28 is attached to pad 14... Page 5, ll. 2-4.

Specific characteristics of heat shields in preferred examples are also described in the specification. In some examples, the heat shield is described as having a thermal conductivity higher than that of the core and/or cover.

> To reduce peak temperatures of core 20 and/or cover 22 when heated by taillight 32, heat shield 38 is made of a material that has a higher thermal conductivity than core 20 and/or cover 22. The maximum temperature at areas of concentrated heat, such as points 34, is reduced by shield 38 being able to effectively disperse the heat over a broader area. The term, "thermal conductivity" refers to a materials ability to conduct heat of a given temperature gradient along a given length and through a given cross-sectional area of the material, thus thermal conductivity is a property of the material itself, and is generally independent of the material's shape. A typical unit of measure of thermal conductivity would be (Btu)/(hr)(ft)(°F). Specification, Page 5, 1. 28 - Page 6, 1. 6.

From the descriptions of these preferred embodiments and from the plain language of the claims, the term "heat shield" and the heat shield having "a higher thermal conductivity than the foam core" would be understood to persons of ordinary skill in the art. And it would be understood that Styba does not teach the claimed heat shield, expressly or inherently. Moreover, it would be understood that the purpose of the heat shield having such thermally conductive properties is to conduct and dissipate heat from a point source (such as a marker light) over a broad area to inhibit localized heating that could result in combustion.

2. The Rejection Fails to Establish Prima Facie Inherency

The patent office establishes no *prima facie* anticipation based on Styba. There is no evidence to suggest that the materials used in Styba are the same as or exhibit the same properties to those listed in the Transmission of Heat (Appendix D) chart.

Anticipation requires the presence of a "single prior art disclosure of each and every element of a claimed invention." Lewmar Marine, Inc. v. Barient, Inc., 827 F.2d 744, 747 (Fed. Cir. 1987). Such disclosure must be either express or under the principals of inherency. Kalman v. Kimberly-Clark Corp., 713 F.2d 760 (Fed. Cir. 1983). Yet, the bar for establishing inherency is high. For a teaching to be inherent, the teaching must necessarily be present in the single prior art disclosure.

See, e.g., Electro Medical Systems, S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048 (Fed. Cir. 1994).

Courts do not allow inherency challenges based on mere possibility or conjecture. "The mere fact that a certain thing may result from a given set of circumstances is insufficient to prove anticipation." Electro Medical Systems, S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1052 (Fed. Cir. 1994). In other words, it is not sufficient to take a generic prior art reference to a class of materials, find one member of that class with a particular physical property value, and then deduce that all members of the class have that same physical property value.

In In re Brink (164 USPQ, 247, 249 (CCPA 1970)), the Court of Customs and Patent Appeals addressed a situation nearly identical to the present one and found no inherency and no anticipation. An examiner rejected a claim under 35 U.S.C. §102 based upon a prior art reference which disclosed a generic type of material ("Owen-Cornings TWF"). The patent claims required materials with certain physical properties. The prior art reference made no mention of whether the TWF material it used had these properties. The examiner in In re Brink included a dictionary handbook that listed some specific TWF materials, to evidence what the prior art reference inherently meant by its usage of TWF. The Board sustained the rejection, but the CCPA reversed.

The patentee argued that claimed subject matter was "not inherent in the [prior art] because nowhere therein [was] the importance of bed density recognized." In re Brink, 164 USPQ at 249. "Moreover, [even] if [the handbook] may be properly referred to, it is merely speculative that anything therein described is the same material used in the reference patent," argued the patentee. Id. The CCPA agreed, noting that, based upon the relied-upon disclosures, "one is unable to say with reasonable certainty that one form of TWF would be used in preference to another." In reversing the rejection, the CCPA stated:

> [W]e do not see how a disclosure or combination of disclosures leaving one to rely on fortune in choosing the referred to material can function as an anticipation. Id.

Simply stated, courts do not allow inherency rejections based on chance.

The Flawed Inherency Argument

There is no question that Styba does not expressly teach the claimed subject matter. Styba makes no mention of heat shielding in the first instance and makes no mention of the claimed relative thermal conductivities in the second.

Appeal Number 1 was filed when the patent office, having found no express teaching of the claimed heat shield, argued that a heat shield was nonetheless inherently taught by Styba's puncture resistant layer. In that appeal, the patent office cited material properties listed in an unrelated technical handbook. On Appeal, the applicants noted that the purported properties cited in the rejection were not relevant to the claimed subject matter. Appropriately, and in retrospect prophetically, the applicants also noted that despite this irrelevance, there was nothing within the art that suggested that the actual materials of Styba exhibited the properties cited in the handbook.

Now, nearly two years later, in response to another similarly-flawed rejection, the applicants are forced to repeat that which has already been established: nothing in the prior art expressly or inherently teaches the claimed heat shield or a heat shield exhibiting the claimed thermal conductivity properties.

As the applicants' representatives have noted, there is no way of determining if the material mentioned in Styba is the same material listed on the Transmission of Heat chart. There is no necessary connection between the chart's specific examples and thermal conductivities and the materials mentioned in Styba.

The Examiner makes the general statement that "[t]he thermal conductivity of a particular material is...an inherent characteristic of the material." And, the applicants agree; materials do have thermal conductivities. Yet, the examiner takes this truism and concludes that all materials within a class must have the same thermal conductivity. This, of course, is not true.

The suggestion that all materials within a class must share the same thermal conductivity value is logically flawed. Essentially, as the logical fallacy goes,

the office action has concluded that all polyurethanes have a thermal conductivity of [sic] 0.17k, because the Transmission of Heat chart lists a polyurethane foam that does. The office action has concluded that all polyesters have a thermal conductivity of .31k or .48k, because the Transmission of Heat chart lists two that do. The office action has concluded that all polyvinyl chlorides (PVC) have a thermal conductivity of [sic] 0.21k, because the Transmission of Heat chart lists one that does (a material called "Klegecell"). Oddly, the patent office draws these conclusions, even though it is well known that chemicals and materials vary widely in physical characteristics, with differences in cross-linking and polymer lengths being just two of the various factors that influence physical characteristics. Furthermore, the patent office reaches these conclusions although the Transmission of Heat chart clearly (and prominently) states that its thermal conductivities should serve as a guide, as thermal conductivities vary greatly.

In other words, the patent office need look no further than the Transmission of Heat chart to understand why the CCPA in In re Brink stated "we do not see how a disclosure or combination of disclosures leaving one to rely on fortune in choosing the referred to material can function as an anticipation." Id. That chart aptly warns against any attempt to read that its properties as applying to all examples of the listed materials:

> The chart above provides generally accepted thermal conductivities typical of the materials described. **Do [sic] to the variations in individual manufacturers formulations and production methods significant variations can exist between apparently similar products.** (Emphasis added)

This is true not only for the static values listed (i.e., .17 k, .31 k, .48k and .21 k), but would also appear to be true for relative values as well (i.e., whether one material has a higher thermal conductivity than another).

To demonstrate the importance and accuracy of this disclaimer and further evidence the principles behind the cautions of In re Brink, the applicants attach (*see*, Appendices F and G) herewith thermal conductivity data on other PVCs and urethane foams. Interestingly, the attached examples paint an entirely different

thermal conductivity picture from that painted by the patent office and show an example of why the patent office's inherency position is untenable.

The relative thermal conductivities values from Appendices F and G are listed in the table below, along with the rejection's purported polyester value. The values were derived from well-established treatises on chemical properties.[1]

TABLE 1

Material	**Thermal Conductivity (k)** (btu in/hr/ft^2/°F)
PVC (outer coating)	1.21k
Urethane foam	.41k
Polyester (Fiber) (puncture layer)	.31k (Transmission of Heat chart)
Relative Relationship between thermal conductivities when applied to the materials of Styba.	$k_{\text{Puncture Layer 34}} < k_{\text{Resilient Foam 40}} < k_{\text{Outer coating 40}}$

As the chart shows, these PVCs and urethane foams exhibit completely different thermal conductivities from those listed in the Transmission of Heat document. And more pertinently, the values in Table 1 have a completely different thermal conductivity relationships to one another, than that suggested by the patent office in the appealed rejection. Under the above data, Styba's puncture resistant layer (i.e., the

[1] As listed in the Encyclopedia of Chemical Technology, Vol. 24, p. 1026, 4th Edition (1997) Appendix F, PVC may have a thermal conductivity of 17.5×10^{-4} J/(cm s)°C. The applicants have used the well-known conversion table of the CRC Handbook of Chemistry and Physics, 84th Edition (2003), p. 1-49 (Appendix G) to convert those units into Btu in/h/ft^2/°F, as follows:

PVC: 17.5×10^{-4} J/(cm s)°C x 6.93811×10^2 = 1.21 Btu in/h/ft^2/°F = **1.21 k.**

The CRC Handbook of Chemistry and Physics (Appendix H, p. 12-226) lists urethane foam as having thermal conductivity of .06 W/mK, which can be converted into the appropriate units as follows:

Urethane foam: .06 W/mK x 6.93811 = .41 Btu in/h/ft^2/°F = **.41 k.**

purported heat shield) would have a lower thermal conductivity than either adjacent layer. In fact, if the materials from Table 1 are the actual materials used by Styba, then Styba would arguably teach away from the now-claimed thermal conductivity relationships.

In either case, the applicants cite this data, not as definitive evidence of the actual materials in Styba, but rather as even further evidence that the office action's inherency rejection is fatally flawed. No *prima facie* anticipation has been established, and none could be established, particularly because there is no appreciation or mention of heat properties—just like in In re Brink. If one reproducing Styba were thus presented with two possible puncture-resistant materials, one with a higher thermal conductivity and one lower, there would be no basis for choosing the higher thermal conductivity material, and thus any creation of the claimed structure would be based only on good fortune — the very type of "inherency" rejected in In re Brink.

B. Claim 16 Is Patentable Over Styba in Combination with the Commercial Material RTCMO1.

The patent office cannot establish *prima facie* obviousness as to claim 16, as there is no teaching, suggestion or motivation to make the proposed combination, and there would be none as the proposed combination would render Styba wholly inoperable. These flaws alone establish the impropriety this rejection.

The office action recognizes that Styba does not teach the subject matter of claim 16. The claim depends from claim 1 and further recites "wherein the heat shield includes aluminum." Styba describes only polyester and nylon for its puncture resistant layer 34.

The patent office, nevertheless, rejects claim 16 stating that:

> [it] would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the heat shield of Styba with the aluminum RTCM01 in order to ensure that the dock pad is not only puncture resistant but also resistant to excessive heat conditions thereby increasing the life of the dock pad.

This, of course, presumes that one of ordinary skill in the art would be motivated to replace Styba's puncture resistant layer with something that could prevent excessive heat. This presumption fails, of course, because the patent office fails to cite any place within the prior art where such a problem is recognized or where such a motivation exists.

The patent office's position also presumes that the RTCMO1 aluminum would qualify as a puncture resistant material, such that one would be motivated to use it in the Styba structure. That, of course, is factually incorrect, because, as the examiner notes in the interview summary from the March 31, 2004 interview, RTCMO1 aluminum is indeed not puncture resistant, as Styba requires. This observation was included in the summary, as applicant's representative easily punctured the RTCMO1 sample with the tip of a pen — establishing it is not puncture-resistant.

The MPEP is clear that a proposed modification cannot render the prior art unsatisfactory for its intended purpose. MPEP §2143.102. Thus, contrary to what the patent office argues, as a matter of law, one would not be motivated to replace the puncture resistant material of Styba with a puncturable material, like aluminum.

> If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. MPEP §2143.02, *citing* In re Gordon, 733 F.2d 900 (Fed. Cir. 1984).

As the proposed modification to Styba would render the device unsatisfactory for its intended purpose, there is no *prima facie* obviousness and the rejection of claim 16 must be withdrawn.

IX. CONCLUSION

In view of the foregoing remarks, it is respectfully submitted that all of the rejections made in the outstanding office action should be overturned.

Respectfully submitted,

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By: _____
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May 10, 2004

PENDING CLAIMS

1. A dock pad adapted to seal against a vehicle parked against the dock pad, comprising:

a foam core;

a cover disposed on the foam core; and

a heat shield adjacent the cover, wherein the dock pad is adapted to seal against the vehicle by virtue of the foam core being compressible, the cover being pliable, and the heat shield being pliable, wherein the heat shield has a higher thermal conductivity than the foam core.

2. The dock pad of claim 1, wherein the heat shield is interposed between the cover and the foam core.

4. The dock pad of claim 1, wherein the heat shield has a higher thermal conductivity than the cover.

5. The dock pad of claim 1, wherein the heat shield can withstand a higher temperature than the foam core.

6. The dock pad of claim 1, wherein the heat shield can withstand a higher temperature than the cover.

7. A dock pad adapted to seal against a vehicle parked against the dock pad, comprising:

a foam core;

a cover disposed on the foam core; and

a heat shield adjacent the cover, wherein the dock pad is adapted to seal against the vehicle by virtue of the foam core being compressible, the cover being pliable, and the heat shield being pliable, wherein the heat shield has a higher reflectivity than the foam core.

8. The dock pad of claim 7, wherein the heat shield has a higher reflectivity than the cover.

9. The dock pad of claim 10, wherein the cover has a higher auto ignition point than the foam core.

10. A dock pad adapted to seal against a vehicle parked against the dock pad, comprising:

a foam core;

a cover disposed on the foam core; and

a heat shield adjacent the cover, wherein the dock pad is adapted to seal against the vehicle by virtue of the foam core being compressible, the cover being pliable, and the heat shield being pliable, wherein the cover has a lower auto ignition point than the heat shield.

11. The dock pad of claim 10, wherein the foam core has a lower auto ignition point than the heat shield.

12. The dock pad of claim 1, further comprising a backer attached to the cover and having greater rigidity than the foam core and the cover to provide the foam core and the cover with structural support.

13. The dock pad of claim 1, further comprising a sealing surface and a mounting surface that face away from each other with at least a portion of the heat shield extending substantially parallel to the sealing surface and being closer to the sealing surface than the mounting surface, wherein the sealing surface is adapted to seal against the vehicle and the mounting surface is adapted to be attached to a wall.

14. The dock pad of claim 1, wherein the dock pad has an elongated length running substantially horizontally.

15. The dock pad of claim 1, wherein the dock pad has an inverted U-shape with one horizontally elongated member and two vertically elongated members, with the heat shield being part of the horizontally elongated member.

16. The dock pad of claim 1, wherein the heat shield includes aluminum.

17. A dock pad, comprising:

a foam core;

a cover disposed on the foam core; and

a heat shield interposed between the cover and the foam core, wherein the heat shield has a higher thermal conductivity than the foam core and the cover.

19. The dock pad of claim 17, wherein the heat shield has sufficient flexibility to allow the dock pad to compress and decompress.

20. A dock pad, comprising: a backer; a foam core; a cover; and a heat shield; wherein the foam core is between the backer and a sealing surface of the cover, the heat shield is between the foam core and the sealing surface, the backer is more rigid than the foam core and the cover, and the heat shield has a higher thermal conductivity than the foam core.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/548,876	04/13/2000	Jason D. Miller	0-03A	7633

29020

7590 09/10/2003

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EXAMINER
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ART UNIT	PAPER NUMBER
3635	

DATE MAILED: 09/10/2003

Docketed: 12/4/03

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/548,876	JASON MILLER ET AL.
Examiner	**Art Unit**
YVONNE M. HORTON	3635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Jun 12, 2003*.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1, 2, 4-17, 19, and 20* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) *7-11* is/are allowed.

6) ☒ Claim(s) *1, 2, 4-6, 12-17, 19, and 20* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Amendment

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1,2,4-6,12-15 stand and claims 17,19 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by US patent 6016637, **Styba**.

In regards to claims 1 and 17, **Styba** discloses a dock pad (24) adapted to seal against a vehicle parked against the dock pad, comprising a foam core (30); a cover (40) disposed on the foam core; and a heat shield (34) adjacent the cover, wherein the dock pad is adapted to seal against the vehicle by virtue of the foam core being compressible, the cover being pliable, and the heat shield being pliable. Although the heat shield (34) of **Styba** is noted for use as a puncture resistor, **Styba** also discloses that this material (34) could be "polyester". Polyester is well known in the art for its flexible and flame resistance characteristics. So, even though **Styba** does not explicitly state that the material (34) is a "heat shield", heat resistance is an inherent characteristic of the disclosed material - polyester, see the attached definition of a

polyester resin and characteristics associated therewith. The thermal conductivity of a particular material is also an inherent characteristic of the material. The core (30) of **Styba** is polyurethane. Polyurethane has a thermal conductivity of 0.017*k, see the attached transmission of heat chart.* The heat shield (34) is made from a polyester material. Polyester has a thermal conductivity of 0.31*k* or 0.48*k* depending upon whether it was hand laid or pultruded. At any rate, the thermal conductivity of the heat shield (34) of **Styba** is higher than the thermal conductivity of the foam core.

In regards to claims 2 and in further regards to claim 17, **Styba** discloses the heat shield (34) being interposed between the cover (40) and the foam core (30), see Figure 4.

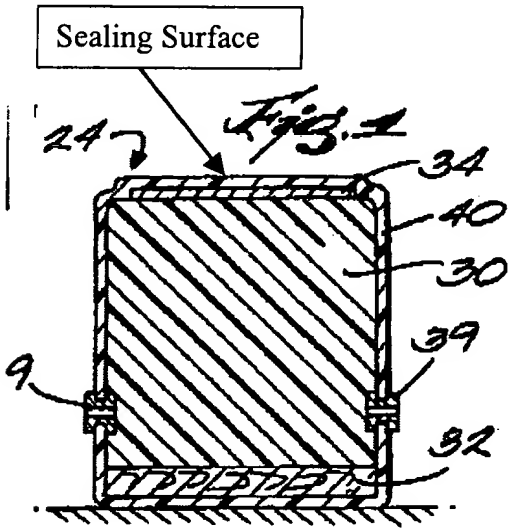
In reference to claim 4, the cover (40) of **Styba** is a vinyl plastic (typically PVC). PVC has a thermal conductivity of 0.031*k*, see also the attached chart, and the heat shield (34), has thermal conductivity of 0.031*k* or 0.48*k*. Thus, the heat shield (34) of **Styba** has a higher thermal conductivity than the cover (40).

In regards to claims 5 and 6, "thermal conductivity" is the measurement of the speed at which heat travels through a material through conduction. Therefore, the lower the *"k"* value, the better the thermal transmission. Hence, the lower the *"k"* value more heat is transmitted thereby having less of the ability to withstand high temperatures. Thus, the heat shield (34), has thermal conductivity of 0.031*k* or 0.48*k* and the core (30) has a thermal conductivity of 0.017*k* and the cover (40) has a

thermal conductivity of 0.01*k*; inherently, the heat shield (34) can withstand higher temperatures than both the cover and the core.

In reference to claim 12, **Styba** discloses a backer (32) attached to the cover (40). The backer (32) is wood and knowingly has a greater rigidity than the foam core (30). The backer (32) serves to provide the foam core (30) and the cover (40) with structural support.

In regards to claim 13, in Figure 4 below, **Styba** discloses a sealing surface and a mounting surface (MS) that face away from each other with at least a portion of the heat shield (34) extending substantially parallel to the sealing surface and being closer to the sealing surface than the mounting surface (MS), wherein the sealing surface is adapted to seal against the vehicle and the mounting surface (MS) is adapted to be attached to a wall (16). (See Below).



In regards to claim 14, **Styba** discloses the dock pad (10) having an elongated length (20) running substantially horizontally.

In regards to claim 15, **Styba** discloses the dock pad (10) having an inverted "U-shape" with one horizontally elongated member (20) and two vertically elongated members (18, 18'), with the heat shield (34) being part of the horizontally elongated member (20).

Regarding claim 19, again, **Styba** is not explicit as the flexibility of the materials of his dock seal. However, he does disclose in column 2, lines 41-52 that his dock seal has the ability to "compress" in response to a vehicle coming in contact therewith. **Styba** further details, column 2, lines 53 to column 3, line 2, that the core (30) of his dock seal is "resilient". A resilient material has the ability to regain its original shape. Hence, inherently, the material of the heat shield (34) must be capable of enough flexibility to allow the core (30) to compress and return to its original shape.

In reference to claim 20, **Styba** discloses dock pad, comprising a backer (32); a foam core (30); a cover (40); and a heat shield (34); wherein the foam core (30) is between the backer (32) and a sealing surface (see figure 4 above) of the cover (40), the heat shield (34) being between the foam core (30) and the sealing surface, the backer (32) being made from wood or metal which are inherently more rigid than the foam core (30) and the vinyl cover (40). **Styba** does not explicitly disclose the heat shield being able to withstand a higher temperature than the foam core and the cover. However, **Styba** does disclose that his heat shield (34) is made from polyester, the

cover (40) is vinyl, and the core (30) is polyurethane. As can be seen from the attached chart, polyester has a thermal conductivity of *0.31k or* 0.48*k* , vinyl (PVC) has a thermal conductivity of 0.21*k,* and polyurethane has a thermal conductivity of 0.17*k.* "Thermal conductivity" is the measurement of the speed at which heat travels through a material through conduction. Therefore, the lower the *"k"* value, the better the thermal transmission. Hence, the lower the *"k"* value more heat is transmitted thereby having less of the ability to withstand high temperatures. Thus, the heat shield (34) can withstand higher temperatures than both the cover and the core.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Styba** in view of **Commercial Material RTCM01**. **Styba** discloses the claimed invention except for the heat shield including aluminum. **RTCM01**, as disclosed by the applicant, consists of two sheet layers of perforated aluminum. Since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice, it too would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the heat shield of **Styba** with the aluminum of **RTCM01** in order to ensure that the dock pad is not only puncture resistant but also resistant to excessive heat conditions thereby increasing the life of the dock pad.

Allowable Subject Matter

1. Claims 7-11 are allowed.

2. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to teach the thermal reflectivity and auto ignition points of the heat shield and the foam cores.

Response to Arguments

Applicant's arguments filed 7/8/02 have been fully considered but they are not persuasive because although the **Styba** does not explicitly detail the inherent physical characteristics of the materials of the elements of his invention, the rejections have been modified by a chart providing the thermal conductivity for the materials as mentioned in **Styba.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvonne M. Horton whose telephone number is (703) 308-1909.

Yvonne M. Horton
Patent Examiner
Art Unit 3635
September 8, 2003

TRANSMISSION OF HEAT

Conduction, Convection and Radiation

Thermal Conductivity

Thermal conductivity is the measurement of the speed at which heat travels through a material through *conduction*. In the United States thermal conductivity (also referred to as the "k" value) is commonly expressed in terms of the number of BTUs of heat which will travel through one sq. foot of material which is one inch thick when there is one degree F temperature difference across the material (ie. Delta T). This expression is often stated as btu/in/hr/sq.ft/°F. The lower the "k" value the better the thermal insulation. The term "R" value is frequently used to describe the performance of insulation materials. The "R" value is simply the reciprocal of the "k" value. Therefore, the higher the "R" value, the better the insulation quality.

For example: Polyurethane foam insulation board is commonly rated at a thermal conductivity of .17 (point one seven). This means that a 1" piece of foam 12" square would permit .17 BTUs of heat to move through it in one hour if there were a temperature difference of 1^0 F on either side. Were the temperature difference across the material to be increased to 10 degrees, then the 1.7 BTUs would move through it in the same hour.

Listed below is the thermal conductivity of some common materials.

MATERIAL	CONDUCTIVITY ("k")	INSULATIVE ("R")
Copper	2712.00	.00037
Aluminum (6061)	1160.00	.00086
Aluminum (5052)	960.00	.00104
Lead	245.00	.004
Stainless Steel (316)	113.00	.00885
Glass	5.00	.20
Polyester FRP (hand laid)	.48	2.08
Polyethylene Foam	.43	2.33
Wood (dry)	.33	3.03
Polyester FRP (pultruded)	.31	3.26
Glass Wool	.29	3.45
Polystyrene (expanded)	.28	3.57
Cork Board	27	3.70
Polystyrene (extruded)	.21	4.80
PVC (Klegecell)	.21	4.80
Polyurethane Foam	.17	5.88
Air	.16	6.25
BARRIER 20 (new)	.037	27.02
BARRIER 20 (20 years)	.05	20.00
AURA Panels	.013	75.00
Total Vacuum	.004	250.00

The chart above provides generally accepted thermal conductivities typical of the materials described. Do to the variations in individual manufacturers formulations and production methods significant variations can exist between apparently similar products. It should also be remembered that thermal conductivity of the material is only one of several factors effecting the heat transfer which takes place in everyday objects. Depending on the materials involved, others factors may include *convection* (in gases and liquids) and/or *radiation* with varying emphasis on the related components *emissivity* and *absorptivity*.

Convection

In some cases the contributions of convection and radiation play only a minor part in comparison to that of conduction. However, under some conditions, the effects of one or both can be very significant. Convection is the term used to describe the motion or, circulation current, which is set up in any gas or liquid as it is heated or cooled. Convection is not, in itself, a singular heat transport vehicle as is conduction and radiation. Instead, it greatly increases conduction by constantly circulating colder material to the warm surfaces, thus increasing the effective

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail, in an envelope addressed to: Mail Stop Appeal Brief-Patent, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

Dated: June 9, 2003 Signature: Paul B. Stephens

Docket No.: 29020/003A (PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Miller et al.

Application No.: 09/548876 Group Art Unit: 3635

Filed: April 13, 2000 Examiner: Y. Horton

For: HEAT SHIELDED DOCK PAD

RESUBMITTED BRIEF ON APPEAL

Mail Stop Appeal Brief-Patent
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the Notice of Appeal mailed July 3, 2002 in connection with the above-identified patent application, Applicants respectfully submit the instant Brief on Appeal in accordance with 37 C.F.R. § 1.192.

I. REAL PARTY IN INTEREST

The above-referenced patent application has been assigned to Rite-Hite Holding Corporation, who is the real party in interest to this appeal. The assignment has been recorded in the United States Patent and Trademark Office ("PTO") at Frame 010791 of Reel 0849.

II. STATUS OF THE CLAIMS

Currently, claims 1-20 are pending in this application. The pending claims (with proposed amendment) are presented in Appendix A to this Brief. Claims 1-20 stand rejected. Therefore, claims 1-20 form the subject matter of this appeal.

By way of background, this application was filed on April 13, 2000. A status letter was filed on April 19, 2001, and the first official action eventually ensued on July 5, 2001.

The case was filed with claims 1-20, claims 1, 17 and 20 being the only independent claims. All claims were rejected in the first official action based upon a patent to Styba (U.S. Patent No. 6,016,637 attached as Appendix B). Claims 1, 2 and 12-15 were rejected as anticipated under 35 U.S.C. §102(e). Claims 3-11 and 16-20 were rejected under 35 U.S.C. §103(a) based on Styba. In response to these rejections, the applicants filed a response noting that each of the rejected claims recited "a heat shield" and that Styba did not teach a heat shield. As the applicants pointed out, the Styba structure relied upon by Examiner Horton was in fact a puncture resistant material not a heat shield.

A second (and final) official action ensued (Appendix C), again rejecting all pending claims 1-20. Examiner Horton reiterated the same claim rejections made in the first official action and added a second obviousness rejection of claim 16, this time using Styba in view of a commercial product mentioned in the present specification (the Commercial Material RTCM01). Examiner Horton pointed to a passing comment in Styba that its puncture resistant material could be "polyester." From this comment, Examiner Horton surmised that Styba taught the claimed heat shield, because (per Examiner Horton) polyester was known for its "flexible and flame resistance characteristics." The Examiner erroneously determined that a puncture-resistant-polyester layer would inherently function as a heat shield.

Of course, flame resistance and non-flammability are not necessarily indicators of heat shielding ability. Many fabrics and wearable items are made of

flame resistant materials, but do not shield heat and do not have high reflectivity or high thermal conductivity. In fact, one of the advantages of a heat shield is that the flame resistance of the surrounding materials is not an issue. Source heat is dissipated across the heat shield to prevent temperature build-up at any given spot from reaching a flame threshold point and, more importantly, from reaching the lower-temperature melting point threshold. Although the Examiner relies on it, in actuality, Styba's puncture-resistant-polyester layer would likely benefit from the claimed heat shield, which would shield the polyester from melting. In any event, the Examiner's rejection pointed to no correlation between the purported flame resistance characteristic of Styba's material and the actual claim language, that of a heat shield.

Furthermore, the Examiner's inherency argument is hollow given the enormity of the class of polyester materials. There is nothing to suggest that the entire class of polyesters (Styba made no mention of a particular polyester) is flame resistant, although such unanimity would be required to sustain the Examiner's inherency position vis-à-vis Styba.

In response to the final rejection, and pursuant to 37 C.F.R. §1.116, the applicants filed an amendment and response. The amendment cancelled claims 3 and 18, without prejudice, and amended claims 1, 7-11, 17 and 20 (a copy of the entire pending claim set showing the proposed amendments is attached as Appendix A).

III. STATUS OF THE AMENDMENTS

As noted above, cancellation without prejudice of claims 3 and 18, and amendments of claims 1, 7-11, 17 and 20 were requested in an amendment after final,

pursuant to 37 C.F.R. §1.116. In a communication dated July 29, 2002 (Appendix D), Examiner Horton refused to enter the enclosed amendments.[1]

By way of brief summary, independent claim 1 was amended to clarify the difference between heat shielding and the purportedly inherent characteristics relied-upon in the official actions. In particular, claim 1 was amended to add the phrase "wherein the heat shield has a higher thermal conductivity than the foam core." This was the only amendment made to claim 1. Additional claim amendments were as follows.

Claim 7 was amended from dependent to independent form retaining its claim scope. Claim 10 was also amended from dependent to independent form retaining its claim scope. Independent claims 17 and 20 were amended to add further clarifying language similar to that added to claim 1. Specifically, claim 17 was amended to recite wherein "the heat shield has a higher thermal conductivity than the foam core and the cover." And claim 20 was amended to recite the heat shield "has a higher thermal conductivity than the foam core."

The amendments above are the first and only amendments in the case and are believed to place the case in better form for appeal.

IV. SUMMARY OF THE INVENTION

Although reference numerals and specification citations are inserted below in accordance with C.F.R. 1.192(c), these reference numerals and citations are merely examples of where support may be found in the specification for the terms

[1] The Advisory Action states that, while the amendments were not entered after final prosecution, they would be entered and considered upon Appeal. Appendix A lists the claims as they currently stand.

used in this section of the Brief. There is no intention to in anyway suggest that the terms of the claims are limited to the examples in the specification. Although as demonstrated by the reference numerals and citations below, the claims are fully supported by the specification as required by law, it is improper under the law to read limitations from the specification into the claims. Pointing out specification support for the claim terminology as is done here to comply with Rule 1.192(c) does not in any way limit the scope of the claims to those examples from which they find support. Nor does this exercise provide a mechanism for circumventing the law precluding reading limitations into the claims from the specification. In short, the reference numerals and specification citations are not to be construed as claim limitations or in any way used to limit the scope of the claims.

A. Independent Claim 1 and Its Dependent Claims

In the invention as defined in claim 1, a dock pad (14) adapted to seal against a vehicle (10) parked against the dock pad (14) is provided. The dock pad (14) is recited to include a foam core (20 and 20') and a cover (22) disposed on the foam core (20 and 20').

The dock pad (14) of claim 1 further includes a heat shield (38 and 38') adjacent the cover (22), wherein the dock pad (14) is adapted to seal against the vehicle (10) by virtue of the foam core (20 and 20') being compressible, the cover (22) being pliable, and the heat shield (38 and 38') being pliable. By way of amendment after final, claim 1 also recites "wherein the heat shield has a higher thermal conductivity than the foam core."

In the invention as defined in claim 2, the dock pad recited in claim 1 is further defined such that the heat shield is interposed between the cover and the foam core. (Specification, Page 5, ll. 10-13).

In the invention as defined in claim 4, the dock pad recited in claim 1 is further defined such that the heat shield has a higher thermal conductivity than the cover. (Specification, Page 5, ll. 28-30).

In the invention as defined in claim 5, the dock pad recited in claim 1 is further defined such that the heat shield can withstand a higher temperature than the foam core. (Specification, Page 5, ll. 24-27).

In the invention as defined in claim 6, the dock pad recited in claim 1 is further defined such that the heat shield can withstand a higher temperature than the cover. (Specification, Page 5, ll. 24-27).

In the invention as defined in claim 12, the dock pad recited in claim 1 further comprises a backer (24) attached to the cover and having a greater rigidity than the foam core and the cover to provide the foam core and the cover with structural support. (Specification, Page 4, ll. 23-26).

In the invention as defined in claim 13, the dock pad recited in claim 1 further comprises a sealing surface (36) and a mounting surface (26) that face away from each other with at least a portion of the heat shield extending substantially parallel to the sealing surface and being closer to the sealing surface than the mounting surface. As further recited in claim 13, the sealing surface is adapted to seal against the vehicle and the mounting surface is adapted to be attached to a wall. (Specification, Page 4, l. 23 - Page 5, l. 4).

In the invention as defined in claim 14, the dock pad recited in claim 1 is further defined such that the dock pad has an elongated length running substantially horizontally. (*See, e.g.*, Figure 1).

In the invention as defined in claim 15, the dock pad recited in claim 1 is further defined such that the dock pad has an inverted U-shape with one horizontally elongated member and two vertically elongated members, with the heat shield being part of the horizontally elongated member. (*See, e.g.*, Figure 1).

In the invention as defined in claim 16, the dock pad recited in claim 1 is further defined such that the heat shield includes aluminum. (Specification, Page 5, ll. 24-27 and Page 6, ll. 7-14).

B. Independent Claim 7 and Its Dependent Claims

In the invention as defined in claim 7, a dock pad (14) adapted to seal against a vehicle parked (10) against the dock pad (14) is provided. The dock pad (14) is recited to include a foam core (20 or 20') and a cover (22) disposed on the foam core (20 or 20'). (Specification, Page 4, ll. 13-22). The dock pad (14) further includes a heat shield (38 or 38') adjacent the cover (22), wherein the dock pad (14) is adapted to seal against the vehicle (10) by virtue of the foam core (20 or 20') being compressible, the cover (22) being pliable, and the heat shield (38 or 38') being pliable. Further, the heat shield (38 or 38') has a higher reflectivity than the foam core (20 or 20'). (Specification, Page 5, ll. 14-27).

In the invention as defined in claim 8, the dock pad of claim 7 is defined such that the heat shield has a higher reflectivity than the cover. Id.

C. Independent Claim 10 and Its Dependent Claims

In the invention as defined in claim 10, a dock pad (14) adapted to seal against a vehicle (10) parked against the dock pad (14) is provided. The dock pad (14) is recited to include a foam core (20 or 20') and a cover (22) disposed on the foam core (20 or 20'). (Specification, Page 4, ll. 13-22). The dock pad (14) further includes a heat shield (38 or 38') adjacent the cover (22), wherein the dock pad (14) is adapted to seal against the vehicle (10) by virtue of the foam core (20 or 20') being compressible, the cover (22) being pliable, and the heat shield (38 or 38') being pliable. Further, the cover (22) has a lower auto ignition point than the heat shield (38 or 38'). (Specification, Page 5, ll. 24-27).

In the invention as defined in claim 9, the dock pad of claim 10 is defined such that the cover has a higher auto ignition point than the foam core. (Specification, Page 5, ll. 20-24).

In the invention as defined in claim 11, the dock pad of claim 10 is defined such that the form core has a lower auto ignition point than the heat shield. (Specification, Page 5, ll. 24-27).

D. Independent Claim 17 and Its Dependent Claims

In the invention as defined in claim 17, a dock pad (14) is recited to include a foam core (20 or 20'); a cover (22) disposed on the foam core (20 or 20') (Specification, Page 4, ll. 13-22); and a heat shield (38 or 38') interposed between the cover (22) and the foam core (20 or 20'), wherein the heat shield (38 or 38') has a higher thermal conductivity than the foam core (20 or 20') and the cover (22). (Specification, Page 5, l. 28 - Page 6, l. 6.)

In the invention as defined in claim 18, the dock pad of claim 17 is defined such that the heat shield has sufficient flexibility to allow the dock pad to compress and decompress. (Specification, Page 5, ll. 4-9).

E. Independent Claim 20

In the invention as defined in claim 20, a dock pad (14) is recited to include a backer (24); a foam core (20 or 20'); a cover (22); and a heat shield (38 or 38'). The dock pad (14) is further defined to provide that the foam core (20 or 20') is between the backer (24) and a sealing surface (36) of the cover (22) (*See, e.g.*, Figure 1), the heat shield (38 or 38') is between the foam core (20 or 20') and sealing surface (36) (Specification, Page 5, ll. 9-13), the backer (24) is more rigid than the foam core (20 or 20') and cover (22) (Specification Page 4, ll. 23-25), and the heat shield (38 or 38') has a higher thermal conductivity than the foam core (20 or 20'). (Specification, Page 5, l. 28 - Page 6, l. 6).

V. ISSUES ON APPEAL

The issues presented on appeal are as follows:

(1) Are each of claims 1, 2, 4-15, 17, 19, and 20 patentable over Styba, U.S. Patent 6,016,637?

(2) Is claim 16 patentable over Styba alone or Styba in view of the Commercial Material RTCMO1?

VI. Grouping of Claims

Applicants assert that each of groups:

a. claim 1, 2, 4-6, 12-15, 17, 19 and 20;
b. claims 7 and 8;
c. claims 9-11;
d. claim 16;

stands or falls separately. That each of these claim groups stands or falls separately is demonstrated by the facts that: (1) each of these claim groups

includes different and distinct limitations that cannot be found in the cited art as demonstrated below, and (2) that if any one of claims 1, 2, 4-17, 19, and 20 were met by the cited art, the patentability of the claims in the remaining groups would not be effected.

VI. ARGUMENT

A. Are Each of Claims 1,2, 4-15, 17, 19, and 20 Patentable Over Styba, U.S. Patent 6,016,637?

1. 1, 2, 4-6, 12-15, 17, 19 and 20 Are Patentable

Claim 1, and claims 2, 4-6 and 12-15 depending therefrom, all recite a dock pad adapted to seal against a vehicle parked against the dock pad. The claimed dock pad includes a foam core; a cover disposed on the foam core; and a heat shield adjacent the cover, wherein the dock pad is adapted to seal against the vehicle by virtue of the foam core being compressible, the cover being pliable, and the heat shield being pliable. In an amendment after final, the applicants proposed amending claim 1 to further recite "wherein the heat shield has a higher thermal conductivity than the foam core."

Claim 17 is an independent claim reciting a dock pad including a foam core and a cover disposed on the foam core. As amended, the claimed dock pad further includes a heat shield interposed between the cover and the foam core, wherein the heat shield has a higher thermal conductivity than the foam core and the cover. Claim 19 depends from claim 17.

Claim 20 is an independent claim reciting a dock pad including a backer, a foam core, and a cover. The dock pad further includes a heat shield that has a higher conductivity than the foam core.

None of the prior art teach or suggest the claimed heat shields.

In each of these claims, the recitation of a heat shield connotes a structure for shielding from heat. The drawings depict exemplary heat shields 38 and 38', and the specification describes these and other exemplary heat shields in numerous places, for example:

> To make pad 14 more resistant to heat, such as heat generated by a taillight 32 pressing against certain points 34 on a sealing surface 36 of pad 14, a heat shield 28 is attached to pad 14... Page 5, ll. 2-4.

Specific characteristics of heat shields in preferred examples are also described in the specification. In some examples, the heat shield is described as having a thermal conductivity higher than that of the core and/or cover.

> To reduce peak temperatures of core 20 and/or cover 22 when heated by taillight 32, heat shield 38 is made of a material that has a higher thermal conductivity than core 20 and/or cover 22. The maximum temperature at areas of concentrated heat, such as points 34, is reduced by shield 38 being able to effectively disperse the heat over a broader area. The term, "thermal conductivity" refers to a materials ability to conduct heat of a given temperature gradient along a given length and through a given cross-sectional area of the material, thus thermal conductivity is a property of the material itself, and is generally independent of the material's shape. A typical unit of measure of thermal conductivity would be (Btu)/(hr)(ft)(°F). Specification, Page 5, 1. 28 - Page 6, 1. 6.

From the descriptions of these preferred embodiments and from the plain language of the claims, the term "heat shield" and the heat shield having "a higher thermal conductivity than the foam core" would be understood to persons of ordinary skill in the art. And it would be understood that Styba does not teach the claimed heat shield.

Styba does describe a dock seal and method of forming the same. In fact, it is the method of forming a dock seal to which Styba is primarily directed. In

particular, Styba discloses a dock seal that can be made by "applying liquid material over [a] resilient member and curing the liquid material to form a flexible coating." The liquid is applied over a compressible, resilient member 30. Styba claims only the various methods of applying its liquid cover material (e.g., "spraying, pouring, dipping or brushing"). Styba, Col. 1, ll. 57-63.

Styba uses a foam core as a compressible member. To protect this core, Styba supplies a "puncture-resistant material 34" on an outer surface of the core. The material is positioned between the core and the cover and is only described as serving this "puncture-resistance" function. Styba nowhere suggests that this material provides any heat shielding or that it may be replaced with one that does.

Only two types of materials are described for the puncture resistant material, "nylon or polyester." There is no mention of any specific type of nylon or any specific type of polyester, only the desire that the material be puncture-resistant. Furthermore, the material is not even necessary to Styba's dock seal, as it may be replaced if reinforcing materials (like "blown chopped fibers, such as fiberglass") are sprayed along with the liquid material to form the cover. Styba, Col. 3, ll. 3-17. That is, if the cover is sufficiently puncture resistant, then there is no need for the material 34.

Despite Styba's express descriptions being limited to puncture resistance, it is material 34, and specifically the recitation that the material may be "polyester," that Examiner Horton relies upon as teaching the claimed heat shield. The reliance is both legally and factually wrong. No inherency argument may be sustained as a matter of law from Styba's reference to the generic class of polyester materials. Even assuming *arguendo* an inherency argument could pass the red-face

test, the physical properties cited by the Examiner have no bearing on the physical properties actually claimed.

Factual Error

It is well settled that anticipation requires the presence of a "single prior art disclosure of each and every element of a claimed invention." Lewmar Marine, Inc. v. Barient, Inc., 827 F.2d 744, 747 (Fed. Cir. 1987). Such disclosure must be either express or under the principals of inherency. Kalman v. Kimberly-Clark Corp., 713 F.2d 760 (Fed. Cir. 1983). For a teaching to be inherent it must necessarily be present in the single prior art disclosure. *See, e.g.*, Electro Medical Systems, S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048 (Fed. Cir. 1994).

The Examiner acknowledges that Styba does not expressly teach a heat shield. Instead, Examiner Horton invokes inherency.

> So, eventhough [sic] Styba does not explicitly state that the material (34) is a "heat shield", heat resistance is an inherent characteristic of the disclosed material - polyester. Paper No. 7, page 3.

Examiner Horton cites selected definitions of particular types of polyesters in support of the rejection. However, while the definitions indicate that some polyester is flame resistant (indeed, it is the Applicant's experience that melting is more problematic than ignition when dealing with polyester), there is no evidence of record that polyester is a heat shield. In some forms, polyester may be resistant to burning, but this says nothing about whether polyester is a good or bad conductor of heat or whether it is a good or bad reflector of heat. For example, there is nothing to suggest that a polyester layer can dissipate high heat across its body, like a high conductivity heat shield would. Since the law is clear that a rejection must be based on actual

evidence (see, In re Werner Kotzab, 217 F.3d 1365), the absence of any evidence of record as to polyester's heat shielding properties (as opposed to its burning properties) demonstrates that each of the rejections on Styba is totally flawed and must be withdrawn.

The Examiner points to two specific properties of two specific types of polyesters as amounting to the heat shielding function performed by the claimed heat shield; some polyester fibers are "nonflammable," and some polyester resins are "flame resistant." Even tabling for the moment the question of whether the polyester described by Styba must necessarily fall within one of these two polyester categories, which the Examiner has not shown, the properties themselves have nothing to do with the claimed subject matter.

Flammability relates to combustion. A flame retardant material, for example, is defined as a "substance that can suppress, reduce, or delay propagation of a flame through a polymer material." McGraw-Hill Dictionary of Scientific and Technical Terms, 5th Ed.

The ability of a material to resist propagation of a flame is not germane to the extant claims, though. Claim 1 recites a dock pad having a heat shield. A heat shield with a high thermal conductivity or high reflectivity, for example, would stop a dock pad from becoming hot enough to combust. In high thermal conductivity materials, for example, the material is chosen because it dissipates any localized heat over the entire heat shield - something not suggested to be a trait of Styba's polyester. And, in high reflectivity materials, like those claimed in claim 7, the heat would be reflected from the shield (and thus, away from a more combustion-susceptible material, for example) - again, something not suggested to be a trait of Styba's

polyester. The present application describes a foam core that may be polyester and a cover that may be nylon. It is the separate heat shield, however, that protects these materials from heat and flame damage. The flame characteristics are irrelevant in the presence of a heat shield that prevents flaming.

Simply put, the Examiner's reliance on flammability and flame resistance is a red-herring; the claim recites a heat shield. The Examiner's characteristics may be indicative of auto ignition point (i.e., the point at which an object will self-ignite without being exposed to a flame), but they do not necessarily relate to the resistance to heat flow through the material, nor do they necessarily relate to whether a material has a higher thermal conductivity than another material.

Another short example may offer further guidance. Polyester materials are used in clothes and outdoor products, such as backpacks and tents. They are flexible, light-weight, and (in some forms) puncture-resistant.[2] In none of these common forms is polyester known to be heat shielding in the sense of the current claims. In fact, polyester in these forms is known to melt under high heat, suggesting that it would not function as a heat shield at all–the melting temperature threshold is typically much lower than the flame temperature threshold. In contrast, in the present application, aluminum is described as one exemplary material forming a heat shield. Aluminum has a high thermal conductivity, a high reflectivity, and is heat resistant. Aluminum, especially thin-layer aluminum, however, is not known to be puncture resistant. Clearly, the two types of materials are distinctly different.

[2] The present application also describes that polyester may be used to form the foam core.

In sum, even if Styba's use of the term "polyester" necessarily invokes the specific nonflammable or flame resistant polyesters mentioned in the dictionary portions cited by the Examiner, this 'inherency' is of no import because it still does not teach a "heat shield" or a heat shield having "a higher thermal conductivity than the foam core," as recited in claims 1, 2, 4-6, 12-15, 17, 19 and 20. Therefore, the rejection of these claims represents factual error and must be overturned.

Legal Error

Not only is the rejection factually flawed, it is legally flawed. One problem with the inherency rejection is that Styba discusses a generic class of materials. There is nothing to suggest that all materials in the generic class have the properties proffered by the Examiner. In fact, the Examiner's cited dictionary materials (Appendix C) suggests that all polyesters do not share the same properties. Nor is there anything suggesting that one of ordinary skilled in the art would have known to replace the puncture-resistant polyester with a heat shield. Courts do not allow inherency challenges based on mere possibility or conjecture, because this is at odds with the requirements of anticipation. "The mere fact that a certain thing may result from a given set of circumstances is insufficient to prove anticipation." Electro Medical Systems, S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1052 (Fed. Cir. 1994). In other words, it does not matter that a particular polyester may be flame resistant, which as described elsewhere is itself not probative, the prior art must necessarily include the claimed element.

In In re Brink (164 USPQ, 247, 249 (CCPA 1970)), the Court of Customs and Patent Appeals addressed a situation nearly identical to the present one. An examiner rejected a claim under 35 U.S.C. §102 based upon a prior art reference

which disclosed a generic type of material ("Owen-Cornings TWF"). The patent claims required materials with certain physical properties. The prior art reference made no mention of whether the TWF material it used had these properties. The examiner in In re Brink included a dictionary handbook that listed some specific TWF materials, to evidence what the prior art reference inherently meant by its usage of TWF. The Board sustained the rejection, but the CCPA reversed.

The patentee argued that claimed subject matter was "not inherent in the [prior art] because nowhere therein [was] the importance of bed density recognized." In re Brink, 164 USPQ at 249. "Moreover, [even] if [the handbook] may be properly referred to, it is merely speculative that anything therein described is the same material used in the reference patent," argued the patentee. Id. The CCPA agreed, noting that, based upon the relied-upon disclosures, "one is unable to say with reasonable certainty that one form of TWF would be used in preference to another." In reversing the rejection, the CCPA stated:

> [W]e do not see how a disclosure or combination of disclosures leaving one to rely on fortune in choosing the referred to material can function as an anticipation.
> Id.

Applying this holding to the present case, there is nothing in Styba or the dictionary reference attached by the Examiner that suggests that a particular type of polyester was contemplated by Styba or that the contemplated polyester did include, or could have included, the claimed physical property, namely, heat shielding. *A fortiori*, there is nothing to suggest that Styba inherently meant a heat shielding material having a "thermal conductivity higher than the foam core," as recited in claims 1, 2, 4-6, 12-15, 17, 19 and 20.

No Prima Facie Obviousness

Examiner Horton rejected claims 4-6, 17, 19 and 20 as being obvious over Styba.[3] The subject matter of claims 17 and 20 is provided in this section above. Claim 4 further defines the subject matter of claim 1 providing "wherein the heat shield has a higher thermal conductivity than the cover." Claim 5 further defines the subject matter of claim 1 providing "wherein the heat shield can withstand a higher temperature than the foam core." Claim 6 further defines the subject matter of claim 1 providing "wherein the heat shield can withstand a higher temperature than the cover." Claim 19 further defines the subject matter of claim 17 providing "wherein the heat shield has a sufficient flexibility to allow the dock pad to compress and decompress."

The rejection of each of these claims is improper. There is no teaching, suggestion or motivation within the prior art to reconstruct the Styba disclosure to form the claimed subject matter. The prior art does not teach using a heat shield with the structure of Styba, and thus, the Examiner has made no *prima facie* showing of obviousness.

The Examiner points to no teaching of the claimed subject matter within the prior art. Instead, with respect to claims 4-6, 17 and 19, the Examiner summarily states:

> [I]t is within the skill of a worker in the art to select a known material on the basis of its suitability for the intended us as an obvious matter of design choice...There are several different types of foam cores

[3] Claims 3 and 18 were similarly rejected, but have been cancelled in the amendment filed after final. Their respective subject matters have been incorporated into independent claims 1 and 17, respectively.

> as there are heat shields. Each type of material bears its own distinct characteristics with respect to thermal conductivity and ignition points. The type of foam and heat shield would depend greatly upon the environment in which the dock pad is going to be used. If the dock pad was not used as frequently as others, a heat shield with not as high thermal conductivity may be used because the dock pad would not be getting as much use (i.e. the chance of the taillights of a truck destroying the pad are less) and vice-versa. Paper No. 7, Page 6.

The Examiner uses similar language in rejecting claim 20. In both cases, Examiner Horton falls into the trap of using the pending application as a blueprint on how to modify the prior art.

Even to establish obviousness based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference. In re Kotzab, 217 F.3d 1365, 1369 (Fed. Cir. 2000); *See, also,* MPEP §2142. This requirement is necessary to avoid what the Federal Circuit as recognized as "the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher." Id. As explained, at length, by the Federal Circuit in In re Rouffet:

> As this court has stated, "virtually all [inventions] are combinations of old elements." Therefore, an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be "an illogical and inappropriate process by which to determine patentability." To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the

> references that create the case of obviousness. In other words, the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.

In re Rouffet, 47 U.S.P.Q.2d 1453, 1457 (citations omitted and emphasis added). As further explained in the In re Rouffet decision:

> This court has identified three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. In re Rouffet. at 1458.

Examiner Horton does not point to any teaching in Styba as supporting the modifications necessary to sustain a *prima facie* case of obvious. In fact, Styba could not be used for such a purpose, because when using a reference to establish an implicit teaching, motivation, or suggestion, its teachings must be considered in the context of the teaching of the entire reference. In re Kotzab, 217 F.3d 1365, 1371 (Fed. Cir. 2000). The relevant teaching of Styba is directed to puncture-resistance, and only puncture-resistant materials would be selected for use in its structure.[4]

Examiner Horton says that it would be within the skill of the ordinary worker in the art to select known materials that are suitable for the intended use. There is nothing in the statutes or the case law which makes "that which is within the capabilities of one skilled in the art" synonymous with obviousness. Ex parte Gerlach and Woerner, 212 U.S.P.Q. 471 (PTO Bd. App. 1980). Thus, the Examiner's position is flawed as a matter of law.

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[4] Even Styba's puncture-resistant layer may be eliminated (Styba, Col. 3, ll. 8-17), further demonstrating that one would not have thought to replace it with something used for an entirely different intended purpose.

Additionally, Styba's structure is used for an entirely different intended use, puncture-resistance, than the recited heat shield. The idea of interchangeability reduces to a guessing game when one of ordinary skill in the art is asked to interchange an element designed for one intended purpose with an element designed to achieve a wholly separate, unrelated, and, on this record, unrecognized intended purpose.

Precisely to avoid these improper (hindsight) interchangeability arguments, the Federal Circuit has cautioned "to say that the missing step comes from the nature of problem to be solved begs the question [where one] has failed to show that this problem had been previously identified anywhere in the prior art." *See*, In re Zurko, 111 F.3d 887, 890 (Fed. Cir. 1997). Overruled on other grounds. Failing to point to some suggestion or motivation to make these changes, the Examiner's interchangeability rejection would reduce to nothing more than an inherency argument under obviousness. But "a retrospective view of inherency is not a substitute for some teaching or suggestion which supports the selection and use of the various elements in the particular claimed combination." In re Newell, 891 F.2d 899, 901 (Fed. Cir. 1989). Absent some suggestion or motivation to modify Styba in the way suggested by the Examiner, the rejection is based merely upon hindsight.

The Federal Circuit requires that "particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components [or modifications] for combination in the manner claimed." *See*, In re Kotzab, 217 F.3d at 1371. Examiner Horton's rejection contains generalities and possibilities, but nothing from the prior art, or knowledge generally, stating why one would make the suggested modification. A *prima facie* case requires

coming forward with a "specific understanding or principle within the knowledge of a skilled artisan." Id. Even, where the claimed invention may be considered a "technologically simple concept,"[5] there must be a finding of a specific teaching within the prior art to make the combination or modification. Id. Here, the Examiner has pointed to none.

In short, Examiner Horton has made no *prima facie* case of obviousness in rejecting claims 4-6, 17, 19 and 20. Nothing in the prior art of record teaches the claimed heat shield and nothing teaches or suggests using a heat shield with Styba. The obviousness rejection of these claims should be overturned.

For all of these reasons, the rejection of claims 1, 2, 4-6, 12-15, 17, 19 and 20 are legally unsupportable. Reversal of the rejection is respectfully requested.

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[5] Complexity is not a statutory requirement of patentability. On the contrary,

> Though technology has burgeoned, the patent system is not limited to sophisticated technologies and powerful corporations. Nowhere in the statute or the Constitution is the patent system opened only to those who make complex inventions difficult for judges to understand and foreclosed to those who make less mysterious inventions a judge can understand after hearing, as here, the inventor's explanation of his invention and the engineering principles he employed. The constitutional purpose is to encourage disclosure of patentable contributions to "progress in the useful arts", *all* the useful arts, not just the esoteric. The statute requires utility, novelty, and nonobviousness, not complexity.

Panduit Corp. v. Dennison Manufacturing Co., 1 U.S.P.Q.2d 1593, 1600 (Fed. Cir. 1987). (emphasis added).

2. Claims 7 and 8 Are Patentable

Claim 7 has been amended into independent form, with claim 8 depending therefrom. Both claims recite a dock pad adapted to seal against a vehicle parked against the dock pad. The claims further recite a foam core, a cover disposed on the foam core, and a heat shield adjacent the cover. As recited in claim 7, the heat shield has a higher reflectivity than the foam core. Claim 8 further defines the subject matter of claim 7 providing "wherein the heat shield has a higher reflectivity than the cover."

As described in some embodiments within the specification, the heat shield is described as having a high heat reflectivity in comparison to the surrounding core and cover, thereby protecting the inner core from damage due to excessive heat.

> ...Moreover, shield 38 preferably has a higher reflectivity than core 20 and cover 22. This can be beneficial in cases where the cover can withstand a higher temperature than the core, wherein "withstand a higher temperature" means a material can be raised to the higher temperature and then substantially recover its original properties after its temperature returns to normal. For example, if the foam of core 20 has an auto ignition point (i.e., temperature at which the material self-ignites without being triggered by a spark or a flame) of 700 degrees Fahrenheit and cover 22 has an auto ignition point of 900 degrees, then heat shield 38 with high reflectivity could reflect heat away from the foam and redirect it into cover 22, which may be able to handle the heat better. Specification, Page 5, ll. 2-24

Examiner Horton has rejected claims 7 and 8 as being obvious over Styba. The Examiner points to no teaching of the claimed subject matter within the prior art – in fact, there is no mention of reflectivity by the examiner. Instead, the Examiner summarily states:

> [I]t is within the skill of a worker in the art to select a known material on the basis of its suitability for the intended us as an obvious matter of design choice...Paper No. 7, Page 6.

As provided in the previous section (Section VI (A) (1)), the rejection is nothing more than improper hindsight.

The previous section provides the factual and legal bases for traversing the rejection of claims 7 and 8, and these argument are incorporated into this section. It was shown above that nothing in the prior art taught the claimed heat shield or a heat shield having a higher thermal conductivity than the foam core. Similarly, there is nothing in the prior art that teaches or suggests a heat shield having a higher reflectivity than the foam core or the cover. And there is nothing in the statutes or the case law which makes "that which is within the capabilities of one skilled in the art" synonymous with obviousness. Ex parte Gerlach and Woerner, 212 U.S.P.Q. 471 (PTO Bd. App. 1980).

The Examiner's position is flawed as a matter of law. Examiner Horton has made no *prima facie* case of obviousness in rejecting claims 7 and 8. The rejection of these claims should be overturned.

3. Claims 9-11 Are Patentable

Claim 10 has been amended into independent form, with claims 9 and 11 amended to depend therefrom. All claims recite a dock pad adapted to seal against a vehicle parked against the dock pad. The claims further recite a foam core, a cover disposed on the foam core, and a heat shield adjacent the cover. As recited in claim 10, the cover has a lower auto ignition point than the heat shield. Claim 9 further defines the subject matter of claim 10 providing "wherein the cover has a higher auto

ignition point than the foam core." Claim 11 further defines the subject matter of claim 10 providing "wherein the foam core has a lower auto ignition point than the heat shield."

Examiner Horton has rejected claims 9-11 as being obvious over Styba. As provided in Sections VI (A) (1) and (2) above, the rejections are improper for failure to state a *prima facie* case of obviousness. Nothing in the prior art, alone or in combination or modification, teaches the claimed dock pad including a heat shield. For this reason alone, the rejections of claims 9-11 should be reversed.

Additionally, the rejections are flawed for lack of any showing of the comparative auto ignition point properties claimed. The Examiner points to no teaching within the prior art of the a heat shield, foam core, or cover having the comparative auto ignition points claimed. The Examiner impermissibly relies upon the skill of the worker in the relevant art as supplying the absent teachings:

> [I]t is within the skill of a worker in the art to select a known material on the basis of its suitability for the intended us as an obvious matter of design choice...Paper No. 7, Page 6.

The Examiner does cite to materials indicating that polyester resin is "flame resistant." But this naked statement is insufficient in light of the comparative nature of the claims.

First, there is nothing to suggest that when Styba referred to polyester it referred to a "flame resistant" polyester as mentioned in the Examiner's dictionary reference (Appendix C). Second, there is nothing in the art of record to suggest that the puncture-resistant material has a higher auto ignition point than the foam core (polyurethane foam) or the cover. Furthermore, there is nothing in the art of record to

suggest that the cover has a higher auto ignition point than the foam core. Not only are these teachings absent from the prior art, there is nothing in the art of record which would suggest reconstructing Styba to include such materials.

As provided in the previous sections, the rejection is nothing more than improper hindsight. There is nothing in the statutes or the case law which makes "that which is within the capabilities of one skilled in the art" synonymous with obviousness. Ex parte Gerlach and Woerner, 212 U.S.P.Q. 471 (PTO Bd. App. 1980). The Examiner's position is flawed as a matter of law and the rejection of claims 9-11 should be overturned.

B. Is Claim 16 Patentable Over Styba Alone or Styba in View of the Commercial Material RTCMO1?

Claim 16 depends from claim 1 and further recites "wherein the heat shield includes aluminum." The specification provides an example:

> In some embodiments, heat shield 38 is incorporated within a Commercial Material RTCM01, which consists of two flexible sheets or layers of perforated aluminum foil reinforced with a polyethylene scrim or fabric... Specification, Page 5, ll. 4-6.

The Examiner rejects claim 16 under two obviousness rejections. The first rejection is based on Styba alone, the second on Styba in view of the Commercial Material RTCM01 mentioned above. Both rejections are predicated upon the Examiner's belief that it would have been obvious to provide an aluminum heat shield, because it was "within the general skill of a worker in the art to select a known material [with] suitability for the intended use."

Section VI (A), at *supra*, provides the legal and factual bases for traversing both obviousness rejections. That entire section is incorporated herein.

The Examiner's position, especially in this case where there is nothing supporting the conclusion from the prior art, reduces to nothing more than a rejection based upon hindsight. Indeed, this rejection goes so far as to explicitly use the applicants' disclosure as the roadmap to the reconstruction citing, as it does, the applicants' disclosed example implementation as the support for the rejection. Moreover, the Examiner points to nothing in the prior art acknowledging the problem solved by the claimed subject matter. The Examiner points to nothing that would suggest why one of ordinary skill in the art would select any heat shielding material as the puncture-resistant layer of Styba. The Examiner has pointed to no suggestion, for example, to use aluminum or any other similar material for that purpose. In fact, the only mention of aluminum is within the present application. Thus, it is abundantly clear that the Examiner's rejections are insufficient to establish *prima facie* obviousness.

The case law is replete with admonishments of similar attempts to rely upon the skill of the ordinary artisan alone as a grounds for invalidity. *See*, Section VI. B., at *supra*, citing In re Kotzab 217 F.3d 1365 (Fed. Cir. 2000); In re Rouffet 47 U.S.P.Q.2d 1453; In re Zurko 111 F.3d 887 (Fed. Cir. 1997); *See, also*, W.L. Gore & Assoc., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553 (Fed. Cir. 1983) ("To imbue one of ordinary skill in the art with knowledge of the invention..., when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of hindsight syndrome wherein that which only the inventor taught is used against its teacher."). The MPEP §2143.01 instructs that rejections such as that made by Examiner Horton are deficient.

> A statement that modifications of the prior art to meet the claimed invention would have been well within the ordinary skill of the art at the time the claimed invention was made because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. MPEP §2143.01. (Citations Omitted).

The Board of Patent Appeals and Interferences reversed a rejection similar to the present one in Ex part Levengood. There the examiner made an obviousness rejection that amounted "to an assertion that one of ordinary skill in the relevant art would have been able to arrive at appellant's invention because he had the necessary skills to carry out the requisite process steps." 28 U.S.P.Q.2d 1300, 1301 (Bd. Pat. App. & Inter. 1993). The examiner pointed to no teaching or suggestion in the prior art, just the general ability of one of ordinary skill in the art. The Board held that this was an inappropriate standard for obviousness, stating "[t]hat which is within the capabilities of one skilled in the art is not synonymous with obviousness." Id.

As the overwhelming weight of the cited authority provides, the Examiner's rejections of claim 16 do not establish a *prima facie* case of obviousness and should be overturned.

VII. CONCLUSION

In view of the foregoing remarks, it is respectfully submitted that all of the rejections made in the final Office action should be overturned.

Respectfully submitted,

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June 9, 2003

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Table 3. PVC Physical Parameters

PVC property	Value			Reference
crystallographic data	orthorhombic, two monomer units/cell			
	a	*b*	*c*	
commercial PVC, nm	1.06	0.54	0.51	34
single crystal, nm	1.024	0.524	0.508	37
crystallinity, %				
as polymerized		19		
from melt		4.9		64
density (uncompounded), g/cc				
whole		1.39		65
crystallites		1.53		37
oxygen permeability, cc/(cm·s)cm^2 cm Hg		$238\ e^{-13.3/RT}$		66
Poisson ratio (rigid PVC)		0.41		
refractive index		1.54		67
glass-transition temperature, °C		83		
coefficient of linear thermal expansion (unplasticized), °C		7×10^{-5}		
specific heat	temp, °C	value, J/g °C[a]		
rigid PVC	23	0.92		68
	50	1.05		
	80	1.45		
	120	1.63		
plasticized PVC (50 phr DOP)	23	1.54		68
	50	1.67		
	80	1.75		
	120	1.88		
thermal conductivity (unplasticized), J/(cm·s)°C		17.5×10^{-4}		69
dielectric strength				
kV/mil		0.5		
kV/mm		20		
solubility parameter, $(J/cm^3)^{0.5}$		40.7 (av)		70

[a]To convert J to cal, divide by 4.184.

Dechlorination of head-to-head, tail-to-tail structure can be expected to go to 100% completion. If dechlorination of head-to-tail structure starts at random positions, then 13.5% of the chlorine should remain at the end of reaction. Dilute solutions of PVC treated with zinc removes 87% of the chlorine, proving the head-to-tail structure of PVC (71).

End Groups and Branching. Both saturated and unsaturated end groups can be formed during polymerization by chain transfer to monomer or polymer and by disproportionation. Some of the possible chain end groups are

$$-CH_3 \quad -CH_2Cl \quad -CHCl_2$$

$$-CH_2CHClCH{=}CHCl \quad -CH_2CHClCCl{=}CH_2 \quad -CH_2CHClCH{=}CH_2$$

PVC polymerization has a high chain-transfer activity to monomer; about 60% of the chains have unsaturated chain ends (72) and the percentage of

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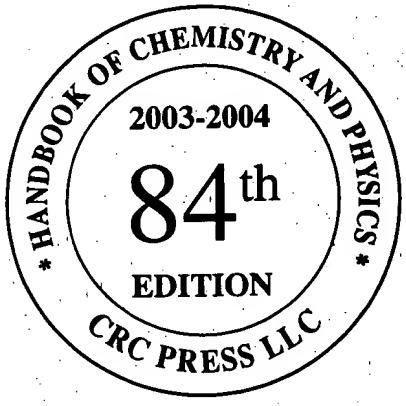

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CONVERSION FACTORS FOR THERMAL CONDUCTIVITY UNITS

MULTIPLY ↓ by appropriate factor to OBTAIN→	$Btu_{IT}\ h^{-1}\ ft^{-1}\ °F^{-1}$	Btu_{IT} in. $h^{-1}\ ft^{-2}\ °F^{-1}$	$Btu_{th}\ h^{-1}\ ft^{-1}\ °F^{-1}$	Btu_{th} in. $h^{-1}\ ft^{-2}\ °F^{-1}$	$cal_{IT}\ s^{-1}\ cm^{-1}\ °C^{-1}$	$cal_{th}\ s^{-1}\ cm^{-1}\ °C^{-1}$	$kcal_{th}\ h^{-1}\ m^{-1}\ °C^{-1}$	$J\ s^{-1}\ cm^{-1}\ K^{-1}$	$W\ cm^{-1}\ K^{-1}$	$W\ m^{-1}\ K^{-1}$	$mW\ cm^{-1}\ K^{-1}$
$Btu_{IT}\ h^{-1}\ ft^{-1}\ °F^{-1}$	1	12	1.00067	12.0080	4.13379×10^{-3}	4.13656×10^{-3}	1.48916	1.73073×10^{-2}	1.73073×10^{-2}	1.73073	17.3073
Btu_{IT} in. $h^{-1}\ ft^{-2}\ °F^{-1}$	8.33333×10^{-2}	1	8.33891×10^{-2}	1.00067	3.44482×10^{-4}	3.44713×10^{-4}	0.124097	1.44228×10^{-3}	1.44228×10^{-3}	0.144228	1.44228
$Btu_{th}\ h^{-1}\ ft^{-1}\ °F^{-1}$	0.999331	11.9920	1	12	4.13102×10^{-3}	4.13379×10^{-3}	1.48816	1.72958×10^{-2}	1.72958×10^{-2}	1.72958	17.2958
Btu_{th} in. $h^{-1}\ ft^{-2}\ °F^{-1}$	8.32776×10^{-2}	0.999331	8.33333×10^{-2}	1	3.44252×10^{-4}	3.44482×10^{-4}	0.124014	1.44131×10^{-3}	1.44131×10^{-3}	0.144131	1.44131
$cal_{IT}\ s^{-1}\ cm^{-1}\ °C^{-1}$	2.41909×10^{2}	2.90291×10^{3}	2.42071×10^{2}	2.90485×10^{3}	1	1.00067	3.60241×10^{2}	4.1868	4.1868	4.1868×10^{2}	4.1868×10^{3}
$cal_{th}\ s^{-1}\ cm^{-1}\ °C^{-1}$	2.41747×10^{2}	2.90096×10^{3}	2.41909×10^{2}	2.90291×10^{3}	0.999331	1	3.6×10^{2}	4.184	4.184	4.184×10^{2}	4.184×10^{3}
$kcal_{th}\ h^{-1}\ m^{-1}\ °C^{-1}$	0.671520	8.05824	0.671969	8.06363	2.77592×10^{-3}	2.77778×10^{-3}	1	1.16222×10^{-2}	1.16222×10^{-2}	1.16222	11.6222
$J\ s^{-1}\ cm^{-1}\ K^{-1}$	57.7789	6.93347×10^{2}	57.8176	6.93811×10^{2}	0.238846	0.239006	86.0421	1	1	1×10^{2}	1×10^{3}
$W\ cm^{-1}\ K^{-1}$	57.7789	6.93347×10^{2}	57.8176	6.93811×10^{2}	0.238846	0.239006	86.0421	1	1	1×10^{2}	1×10^{3}
$W\ m^{-1}\ K^{-1}$	0.577789	6.93347	0.578176	6.93811	2.38846×10^{-3}	2.39006×10^{-3}	0.860421	1×10^{-2}	1×10^{-2}	1	10
$mW\ cm^{-1}\ K^{-1}$	5.77789×10^{-2}	0.693347	5.78176×10^{-2}	0.693811	2.38846×10^{-4}	2.39006×10^{-4}	8.60421×10^{-2}	1×10^{-3}	1×10^{-3}	0.1	1

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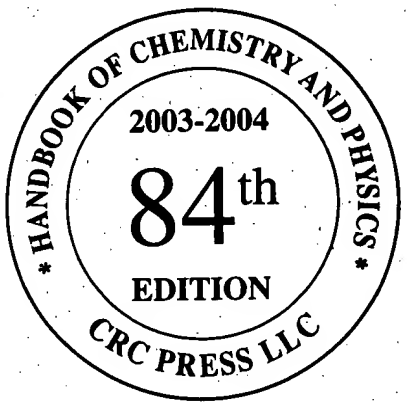

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THERMAL CONDUCTIVITY OF CERAMICS AND OTHER INSULATING MATERIALS

Thermal conductivity values for ceramics, refractory oxides, and miscellaneous insulating materials are given here. The thermal conductivity refers to samples with density indicated in the second column. Since most of these materials are highly variable, the values should only be considered as a rough guide.

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Material	Dens. g/cm³	t °C	Ther. cond. W/m K
Alumina (Al_2O_3)	3.8	100	30
		400	13
		1300	6
		1800	7.4
	3.5	100	17
		800	7.6
Al_2O_3 + MgO		100	15
		400	10
		1000	5.6
Asbestos	0.4	-100	0.07
		0	0.09
		100	0.10
Asbestos + 85% MgO	0.3	30	0.08
Asphalt	2.1	20	0.06
Beryllia (BeO)	2.8	100	210
		400	90
		1000	20
		1800	15
	1.85	50	64
		200	40
		600	23
Brick, dry	1.54	0	0.04
Brick, refractory:			
alosite		1000	1.3
aluminous	1.99	400	1.2
		1000	1.3
diatomaceous	0.77	100	0.2
		500	0.24
	0.4	100	0.08
		500	0.1
fireclay	2	400	1
		1000	1.2
silicon carbide	2	200	2
		600	2.4
vermiculite	0.77	200	0.26
		600	0.31
Calcium oxide		100	16
		400	9
		1000	7.5
Cement mortar	2	90	0.55
Charcoal	0.2	20	0.055
Coal	1.35	20	0.26
Concrete	1.6	0	0.8
Cork	0.05	0	0.03
		100	0.04
	0.35	0	0.06
		100	0.08
Cotton wool	0.08	30	0.04

Material	Dens. g/cm³	t °C	Ther. cond. W/m K
Diatomite	0.2	0	0.05
		400	0.09
	0.5	0	0.09
		400	0.16
Ebonite	1.2	0	0.16
Felt, flax	0.2	30	0.05
	0.3	30	0.04
Fuller's earth	0.53	30	0.1
Glass wool	0.2	-200 to 20	0.005
		50	0.04
		100	0.05
		300	0.08
Graphite			
100 mesh	0.48	40	0.18
20-40 mesh	0.7	40	1.29
Linoleum cork	0.54	20	0.08
Magnesia (MgO)		100	36
		400	18
		1200	5.8
		1700	9.2
MgO + SiO_2		100	5.3
		400	3.5
		1500	2.3
Mica:			
muscovite		100	0.72
		300	0.65
		600	0.69
phlogopite		100	0.66
Canadian		300	0.19
		600	0.2
Micanite		30	0.3
Mineral wool	0.15	30	0.04
Perlite, expanded	0.1	-200 to 20	0.002
Plastics:			
bakelite	1.3	20	1.4
celluloid	1.4	30	0.02
polystyrene foam	0.05	-200 to 20	0.033
mylar foil	0.05	-200 to 20	0.0001
nylon		-253	0.10
		-193	0.23
		25	0.30
polytetrafluoroethylene		-253	0.13
		-193	0.16
		25	0.26
		230	2.5
urethane foam	0.07	20	0.06
Porcelain		90	1